Shuffling

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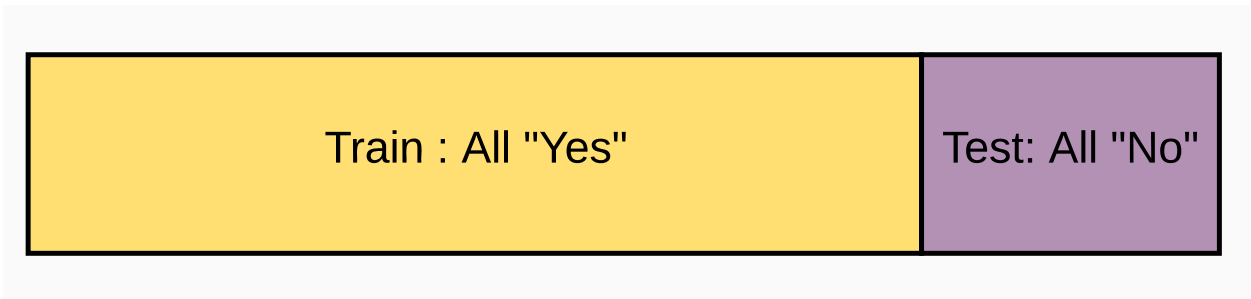
Consider this dataset

First 80 examples are of class “Yes”
Remaining 20 examples are of class “No”.

Serial Number	...	Class
1		Yes
2		Yes
3		Yes
. .		. .
80		Yes
81		No
. .		. .
100		No

Consider this dataset

While using an 80-20 train-test split, we will get the distribution shown below



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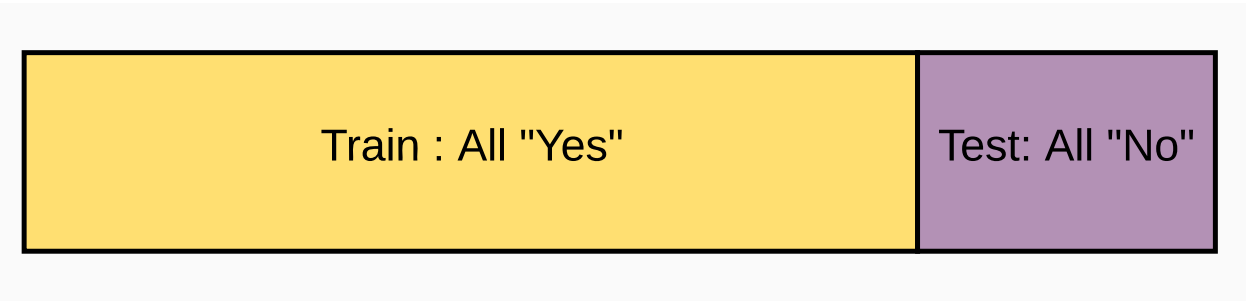

Will we learn anything useful in this scenario?

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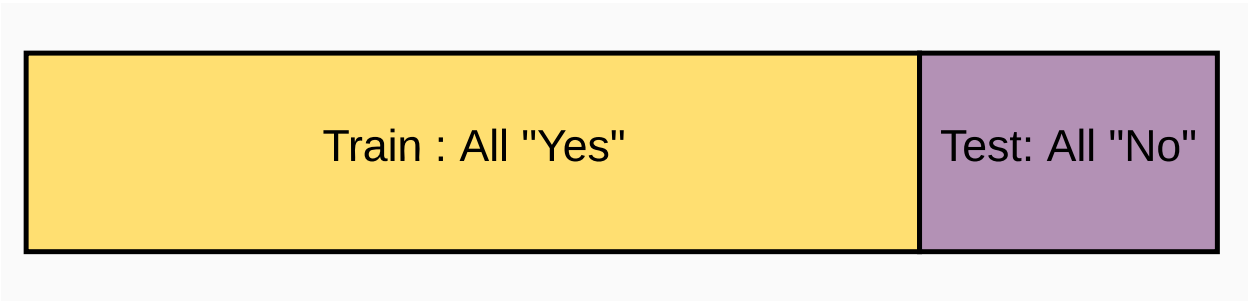

Will we learn anything useful in this scenario? *No* :(

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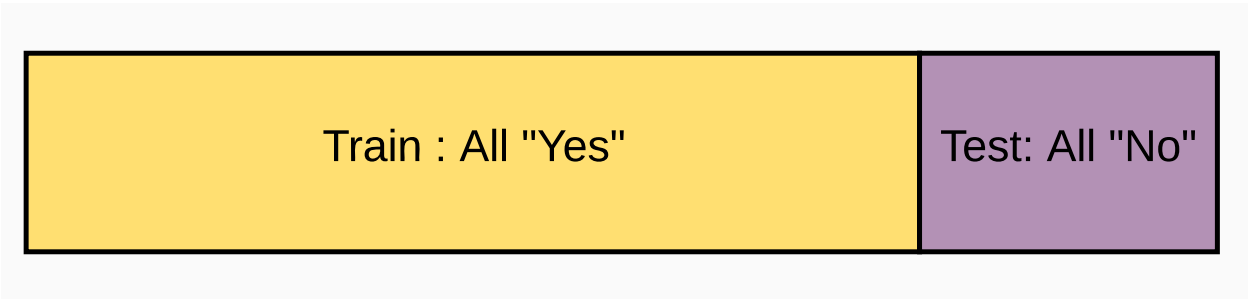

Will we learn anything useful in this scenario? *No* :(

Solution: Shuffle before learning

Why shuffle for SGD?

We can fall into a loop!

SGD on point 1 : $\theta_0 + 0.2, \theta_1 - 0.2$
SGD on point 2 : $\theta_0 - 0.2, \theta_1 + 0.2$

Biased learning as point 2 follows point 1.